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Physical Parameters and Fish Capture Data at Selected Thompson River Basin Sites during 1986 and 1987

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ABSTRACT

Lauzier, R. and G. Taylor. 1989. Physical parameters and fish capture data at selected Thompson River sites during 1986 and 1987. Can. Data Rep. Fish. Aquat. Sci. 723: 23 p.

A sampling program for rearing juvenile salmonids was conducted in the Thompson River during 1986 and 1987. The physical parameters and fish capture data from each sampling site are presented. Physical parameters include water temperature (°C), percent substrate composition, percent cover, sampling methodology, sample area, water conductivity, depths and velocities. Fish capture data include Zippin population estimates for rearing salmonids, the population density per square metre for rearing salmonids, as well as total site catch for salmonids and other fish species.

RÉSUMÉ

Lauzier, R. and G. Taylor. 1989. Physical parameters and fish capture data at selected Thompson River sites during 1986 and 1987. Can. Data Rep. Fish. Aquat. Sci. 723: 23 p.

En 1986 et 1987, un programme d'échantillonnage pour l'élevage de juvéniles de salmonidés a été réalisé dans la rivière Thompson. On présente les paramètres physiques et les données de capture de poisson pour chaque site d'échantillonnage. Les paramètres physiques comprennent la température de l'eau (°C), la composition percentuelle du substrat, le pourcentage de la couverture, la méthodologie d'échantillonnage, l'aire d'échantillon, et la conductivité, les profondeurs et les vitesses de l'eau. Les données de capture comprennent des estimations de population Zippin destinées à l'élevage des salmonidés, la densité de population au mètre carré pour l'élevage des salmonidés, ainsi que la prise totale d'un site pour les salmonidés et d'autres espèces de poissons.

INTRODUCTION

A sampling program for rearing juvenile salmonids was conducted in the Thompson River between January 16, 1986 and May 14, 1987. The sampling was conducted at selected sites on a weekly basis in 1986. The site locations are shown in Figure 1.

METHODS

The water temperature was taken with a hand-held thermometer and read to the nearest half-degree Celsius. A visual estimate was made of the percentage substrate and cover composition, to the nearest ten per cent, for the entire sample site. A number of fish sampling methods were used, depending on hydraulic conditions, water temperature and substrate. The primary fish collection method was electrofishing, using a boat-mounted gas generator powered Smith-Root 1.5 KVA electrofisher (1500 watt output) with a single floating cathode and a single hand-held pole anode. The boat was a 5.2 m welded aluminum river boat equipped with a 150 hp jet drive outboard. There were three crew members for electrofishing, including: a boat operator, who was also operating the electrofisher control console; an anode operator, who controlled the current flow with the anode hand switch; and a netter, who captured the stunned fish with a long handle dip net. The boat was manoeuvred so it was perpendicular to the current, with the bow facing towards shore. The anode operator and netter were standing at the bow rail as the boat drifted with the current parallel to shore, upstream or downstream, depending on the site. The boat was kept in this position by a series of forward and reverse thrusts, as needed. Sites 2,3,4,5,6.5,7.5 and 8 were typically downstream drifts and sites 1 and 7 were typically upstream drifts. Site 6 was often a combination of upstream and downstream drifts. The upstream drifts were the result of large backeddies at the sites. The sample sites were usually 50-100 m long, in order to sample heterogeneous habitat. Sample sites usually included varied substrate types, hydraulic conditions and cover. Fish were collected and kept separate for each pass, for later enumeration and measurement.

Other fish collection methods included beach seines, pole seines and minnow traps. Beach seining was conducted by towing a 15 m seine (5 mm wing,3 mm bunt mesh) off the bank, creating a semi circle with the net by towing it back to shore. The net was retrieved from two shore points, with the lead line slightly ahead of the float line. The catch was enumerated and measured for each set. The pole seine had limited use in shallow quiet areas, mainly in flooded areas during spring freshet. The minnow traps were used occasionally, with chum roe as bait.

Velocities and depths were measured with a Marsh-McBirney Model 201D electromagnetic current meter. Current velocities were measured at 0.6 of the depth for depths less than 1 m, and at 0.8 and 0.2 of the depth and averaged for

depths 1 m or greater. Five depths and velocities were usually measured at each sample site in areas where fish were captured.

Conductivity was measured with a Cole-Parmer Model SJ-1481-50 hand-held digital conductivity meter. The readings were manually compensated for temperature, by dialling in the ambient water temperature in the meter.

In addition to visual estimates of substrate composition, measurements were taken in October 19-20, 1987 at the high and low water levels of each sample site, following the methodology of Kellerhals and Bray (1971). A minimum of 50 rocks were measured at each site.

SAMPLE SITE DESCRIPTIONS

Site 1 was located at the Martel campsite approximately 7 kms upstream of Spences Bridge on the west bank. The site consisted of two types of shoreline and substrate; i) large riprap armouring the CN tracks; and ii) a moderately sloping cobble beach. The riprap section was approximately 60 m long with a large back eddy at most river levels. This area was sampled for its full length at all river levels except extreme freshet. The cobble beach area had slow moving water, which made the only good beach seining site and boat launching ramp.

Site 2 was located on the east bank of the Thompson, opposite Site 1. This area had a large boulder substrate and was located at bend in the river. The sample site was typically 80-100 m long, and included a small back eddy at the downstream end.

Site 2.5 was located on the east bank approximately 5 kms downstream of Site 2. This site was a cobble beach downstream of some mid-channel islands, and located between two sets of large rapids. The sample site had relatively slow water compared to the surrounding area. This site was sampled infrequently, mainly with beach seine.

Site 3 was located immediately downstream of the Nicola/Thompson confluence. The upstream end of the site consisted of a shallow, soft sand bar, followed by two small embayments of moderately slow water. The substrate changed from sand to gravel, cobble and boulder as one proceeded in a downstream direction. The sample site varied a great deal, according to water levels, velocities and turbidity. Beach seines were used in the sand and gravel beach areas, with a sample area of 30-40 m^2. When electrofishing was conducted under good river conditions, the sample area included all substrate types, and was typically 50-60 m long.

Site 4 was a sidechannel on the west bank at the village of Spences Bridge. The shoreline substrate was well rounded, moderately sized boulders. The substrate of the gravel bar varied from small gravel to cobble. The bottom

of the sidechannel was a combination of all substrate types, including pockets of sand and silt. At freshet levels, the water velocities were at the upper limit of safe and feasible electrofishing. The upper end of the sidechannel had a few back eddies at high water, which were easily beach seined. At low water, the sidechanel was cut off from the mainstem at the upper end, with only small amounts of sub-gravel inflow at the upper end. This sample site was typically 50-70 m long and 1-1.5 m wide under most river conditions. The sample area was wider during low water, which resulted in sample areas ranging from 80-150m^2.

Site 5 was a boulder/cobble bar, located opposite Site 4, at the Calvin Woods campsite. The substrate was mainly large boulder. The river hydraulics ranged from moderately fast water at the upstream end, to a slow back eddy at the downstream end. The substrate was usually covered with slippery algal growth, indicating some influence from the Nicola River. This was the only site sampled that had significant algal growth. The sample site was typically 50-70 m long and 2-3 m wide. During freshet flows, the campsite area was partially submerged, providing extensive instream cover.

Site 6 was approximately 1 km downstream of the highway No. 1 bridge at Spences Bridge, located on the east bank. The main substrate was riprap adjacent to the highway, with some extremely large submerged boulders and rocky outcrops. The hydraulics at this site varied mostly with river level. The downstream end was moderately fast-flowing water and the upstream end was usually a long narrow back eddy. A beaver lodge was located in the middle of the sample site. The substrate size varied from large riprap to small broken rock. The sample site was usually 70-100 m in length and approximately 1-1.5 m wide.

Site 6.5 was located directly opposite Site 6. It was a gently sloping gravel/cobble beach with a slow, almost laminar, water flow in the sample area. The area was bordered by large boulders on the upstream side and small cobble and gravel on the downstream side. The main sample method was beach seining at this site. This site was sampled infrequently and was mainly considered as an alternate to Site 6.

Site 7 was located at Big Horn on the west bank. This site had varied substrate and hydraulic conditions within the sample area. The downstream end had a gently sloping sand beach, interspersed with submerged boulders, next to a steep sloping cobble/gravel bank. This in turn was adjacent to a point of boulders and bedrock, with several small bays. The water flow was downstream at the sandy beach, but there was a large back eddy at the gravel bank to the rocky point. The flow was moderately fast and in a downstream direction at the rocky point, but the small bays had quiet refuge areas. The sample area was typically 30-60 m long.

Site 7.5 was located on the opposite bank and slightly upstream of Site 7. This site was only sampled at freshet flows, as an alternate to Site 7. The sidechannel was dry most of the year, but at freshet flows, provided extensive instream and overstream cover in moderately fast water. The beach area was a boulder/cobble beach, with a very gentle slope. The typical sample length was 30-40 m in the beach area, due to difficulties in sampling fast water in a shallow area.

Sample 8 was located directly opposite Goldpan Provincial Park in riprap adjacent to the CN tracks. The substrate varied from small broken rock to medium sized riprap. The substrate was smaller at this site than any other riprap site (Site 1, 6, 7). The shoreline was almost straight, providing very little refuge. The velocities were higher than most other sample sites, and the bank was very steep, providing a very narrow sample area (0.5-1 m). The sample was typically 50-100 m long.

RESULTS

Table 1 lists the physical parameters that were measured at each sample site. Each row has the name of the river system for a sampling site, the date (day,month,year), the time (P.S.T.), the station number, the water temperature (°C), an estimate of % substrate composition at the sample site (categorized as boulder, cobble, gravel, sand, silt and hardpan), an estimate of % cover of the sample site (categorized as boulder, cobble, gravel, cutbank, log debris, overstream vegetation and instream vegetation), sampling methods (minnow trapping, electrofishing, beach seining, pole seining), sample area or time (time in hours for minnow trapping, area in square metres for all other methods), and velocities and depths. Where there were five velocity and depth values, these were measured. Where there was one velocity and depth value each, these were estimated. The depths were measured in centimetres and the velocities in centimetres per second. The final parameter measured was the water conductivity measured in micromho. Any blank spaces mean that the particular parameter was neither measured nor estimated.

Table 2 lists the biological information at each site. The first four columns list the river site, date, time, station number and water temperature, as in Table 1. The next three columns list the Zippin population estimates for chinook, coho, and rainbow trout juveniles, respectively, for each sample area. The Zippin population estimates were calculated from electrofishing, beach seining and pole seining capture data, using a program adapted from Higgins (1985) on an Apple II Plus micro-computer. Where there were blanks in Zippin population estimates of species that have a listed total catch, there were insufficient data to calculate population estimates with statistical confidence intervals. However, a minimum possible population number was calculated, but not listed in this table. Capture data from minnow trap sampling was not used in Zippin population estimates. The columns under the heading Total Site Catch were the actual numbers of fish caught in the sample site. These numbers were categorized as chinook, coho, rainbow trout, mountain whitefish, Dolly Varden char, lamprey (ammocetes and metamorphosed juveniles), cyprinids, suckers, and finally all other species combined (cottids etc.). The actual number caught was the total of three passes, with the exception of minnow trapping. Any blank spaces indicate there was no catch. The final three columns were measures of the population density per square metre calculated from the Zippin population estimates when the Zippin estimates were possible. The 95% confidence limits are listed with the Zippin estimates. In the case when only a minimum population number could be calculated (i.e. there are no Zippin populations

estimated listed in a particular row) these numbers are the minimum population densities, for chinook,coho and rainbow trout juveniles, respectively. Each data line in Table 2 corresponds with a data line in Table. 1.

Table 3 lists the D90 substrate measurements at each site for high water levels and low water levels. These measurements were taken at the B-axis of each rock. The substrate at high water is generally smaller than the substrate at low water.

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Higgins, P.J. 1985. An interactive computer program for population estimation using the Zippin method. Aquacult. Fish. Manage. 16(3): 287-295.

Kellerhals, R. and D.I. Bray. 1971. Sampling procedures for coarse fluvial sediments. Journal of the Hydraulics Division. Proceedings of the American Society of Civil Engineers. HY8: 1165-1180.

Table 1. Physical parameters measured at sampling stations in the Thompson River system during 1986, including data, Pacific Standard Time, station number, water temperature (°C); estimate of % substrate composition (BO-boulder, CO-cobble, GR-gravel, SA-sand, SI-silt, HP-hardpan); estimate of % cover (BO-boulder, CO-cobble, GR-gravel, CB-cut-bank, LD-log debris, OV-overstream vegetation, IV-instream vegetation); sampling methodology (MT# = minnow trapping, including number of traps, ES = electrofishing, PS = poleseining, BS = beach seining); SA/T = sample area of time (sample time in hours if minnow trapping, sample area in square meters for all other sampling methods); velocity (centimetres/sec); depth (centimetres); conductivity (micromho).

RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SUBSTRATE BO	CO	GR	SA	SI	HP	COVER BO	CO	GR	CB	LD	OV	IV	SM	SA	DEPTHS & VELOCITIES V1	D1	V2	D2	V3	D3	V4	D4	V5	D5	COND
																														223
THOMPSON	860117	1000	T3															MT7	18											223
THOMPSON	860117	1000	T3															ES	45											137
THOMPSON	860117	1300	T1	5.5														ES	45											
THOMPSON	860118	1115	T1	2.0	40	10	20	30	00	00	40	00	00	60	00	00	00	MT10	21	3.5	100									
THOMPSON	860324	1030	T8	4.0	60	10	10	20	00	00	60	00	00	40	00	00	00	ES	50											
THOMPSON	860324	1215	T6	6.0	70	25	00	05	00	00	40	00	00	60	00	00	00	ES	30											
THOMPSON	860324	1415	T1	3.5	90	00	00	10	00	00	60	00	00	20	00	20	00	ES	100											175
THOMPSON	860325	0855	T3	4.0	30	50	10	10	00	00	20	30	00	50	00	00	00	ES	40	6	24									
THOMPSON	860325	0855	T3	4.0	00	00	00	50	50	00								BS	30											160
THOMPSON	860325	1100	T5	3.5	60	40	00	00	00	00	40	20	00	00	00	00	00	ES	20	3.5	35									
THOMPSON	860326	1025	T1	4.0	30	40	00	30	00	00	30	20	00	20	00	30	00	ES	110	1	40									
THOMPSON	860326	1130	T7	5.0	60	40	00	00	00	00	30	20	00	50	00	00	00	ES	40	36	26	18	31	14	27	16	39	15	20	151
THOMPSON	860407	1245	T1	5.0	20	50	20	10	00	00	10	30	00	00	00	00	00	ES	60	10	45	3	54	8	75	15	60	15	36	136
THOMPSON	860407	1515	T3	10.0	40	50	10	00	00	00	20	30	00	00	00	00	00	ES	45	5	18	9	21	12	45	10	30	11	39	160
THOMPSON	860408	0915	T4	7.0	35	60	00	05	00	00	20	30	00	00	00	00	00	ES	36	8	15	7	27	15	24	10	21	15	24	127
THOMPSON	860408	1020	T5	8.0	60	40	00	00	00	00	30	20	00	00	00	00	00	ES	62	4	30	12	33	4	24	15	39	-3	36	140
THOMPSON	860408	1140	T7	8.5	60	40	00	00	00	00	40	20	00	00	00	00	00	ES	36.4	-5	21	-7	45	-3	27	5	54	15	60	143
THOMPSON	860415	1215	T3	5.5	50	30	10	10	00	00	30	10	00	00	00	00	00	ES	60											149
THOMPSON	860421	1630	T1	5.0	00	00	90	10	00	00								BS	140											
THOMPSON	860421	1630	T1	5.0	90	10	00	00	00	00								ES	140											133
THOMPSON	860422		T3	5.0														BS	45											
THOMPSON	860422	1000	T5	5.0	50	30	20	00	00	00	30	20	00	00	00	00	00	ES	200											128
THOMPSON	860422	1000	T5	5.0	50	30	20	00	00	00	30	20	00	00	00	00	00	BS	200											
THOMPSON	860422	1100	T4	5.0	40	20	40	00	00	00	30	10	00	00	00	00	00	ES	92.5											126
THOMPSON	860422	1100	T4	5.0	40	20	40	00	00	00	30	10	00	00	00	00	00	BS	92.5											126
THOMPSON	860422	1245	T6	5.0	80	00	00	20	00	00	50	00	00	00	00	00	00	ES	240											130
THOMPSON	860422	1345	T7	5.0	70	30	00	00	00	00	40	10	00	00	00	00	00	ES	125											126
THOMPSON	860507	1430	T1	6.0														BS												153

RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SUBSTRATE BO	CO	GR	SA	SI	HP	COVER BO	CO	GR	CB	LD	OV	IV	SM	SA	DEPTHS & VELOCITIES V1	D1	V2	D2	V3	D3	V4	D4	V5	D5	COND
THOMPSON	860508	0745	T3	8.5														BS												
THOMPSON	860514	1345	T5	10.0	80	20	00	00	00	00	40	10	00	00	00	00	00	ES	200	-2	23	-1	13	1	16	-1	27	-1	14	137
THOMPSON	860520	1145	T1	10.0	10	40	30	20	00	00	10	20	00	00	00	00	30	ES	186											
THOMPSON	860520	1230	T1	10.0	70	00	00	30	00	00	40	00	00	00	00	00	00	ES	150											
THOMPSON	860520	1305	T2	10.0	30	60	10	00	00	00	20	30	00	00	00	00	00	ES	100											
THOMPSON	860520	1415	T4	10.0	20	60	20	00	00	00	10	30	00	00	00	00	00	ES	100											136
THOMPSON	860520	1450	T5															ES	200											
THOMPSON	860521	0710	T5	9.5	40	50	10	00	00	00	20	30	00	00	00	00	00	ES	48											127
THOMPSON	860521	0845	T7	8.5														ES	160											130
THOMPSON	860521	1000	T8	9.0														ES	100											
THOMPSON	860528	1345	T5	12.0	40	20	10	10	10	00								ES	34											
THOMPSON	860603	1030	T5	11.0	00	05	40	15	40	00								PS	25	10	14	2	16	14	45	7	27	8	11	
THOMPSON	860603	1415	T1	10.0	00	10	90	00	00	00	00	00	00	00	00	00	40	ES	20											109
THOMPSON	860603	1415	T1	10.0	00	10	90	00	00	00	00	00	00	00	00	00	40	PS	20											
THOMPSON	860603	1540	T4		00	00	20	00	80	00	00	00	00	00	00	20	40	PS	20											
THOMPSON	860603	1540	T4		00	00	20	00	80	00	00	00	00	00	00	20	40	PS	10											
THOMPSON	860603	1540	T4		00	00	20	00	80	00	00	00	00	00	00	20	40	PS	10											
THOMPSON	860604	0800	T4	11.0	00	20	70	10	00	00	00	00	00	00	00	00	30	PS	10											
THOMPSON	860604	0910	T5	11.0														PS	30											
THOMPSON	860604	1345	T8	11.0	00	00	70	30	00	00	00	00	00	00	00	00	40	BS	10											
THOMPSON	860605	0905	T5		00	00	00	05	95	00	00	00	00	00	00	20	00	PS	30	11	36	17	31	6	31	16	24	19	29	
THOMPSON	860608	1355	T5	12.0	00	05	20	00	75	00								PS	26	20	36	27	33	19	45	1	30	25	36	
THOMPSON	860610	2025	T5	12.0	00	10	30	00	60	00								PS	28.6											
THOMPSON	860611	1000	T5	10.0	00	10	30	00	60	00								PS	9.7	50	36	35	46	25	32	32	29	29	34	
THOMPSON	860613	0905	T5	14.0	00	10	30	00	60	00								PS	28.6											
THOMPSON	860616	1515	T1	13.0	00	10	70	20	00	00	00	00	00	00	00	20	10	BS	30											
THOMPSON	860617	0830	T7	12.0	00	00	30	70	00	00	00	00	00	00	00	20	60	ES	240											
THOMPSON	860617	0945	T8	11.0	20	00	40	40	00	00	00	00	00	00	00	30	30	ES	80											102
THOMPSON	860617	1100	T6	11.0	80	00	00	20	00	00	60	00	00	00	00	00	00	ES	300											102
THOMPSON	860617	1135	T6	11.0	00	00	20	80	00	00	00	00	00	00	00	20	50	ES	40											
THOMPSON	860617	1320	T4		00	00	60	40	00	00	00	00	00	00	00	00	30	BS	30											
THOMPSON	860619	2020	T5	12.0														PS	34	0	48	5	51	2	48	4	42	2	42	
THOMPSON	860621	2005	T5	12.0	10	10	00	00	80	00								PS	34	2	42	-2	42	0	39	0	30	1	30	

RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SUBSTRATE BO	CO	GR	SA	SI	HP	COVER BO	CO	GR	CB	LD	OV	IV	SM	SA	DEPTHS & VELOCITIES V1	D1	V2	D2	V3	D3	V4	D4	V5	D5	COND
THOMPSON	860624		T5	12.0														ES	60											
THOMPSON	860624		T5	12.0														PS	20											
THOMPSON	860625		T5	13.0														ES	83.3											112
THOMPSON	860702	1300	T1	15.0	00	00	80	20	00	00	00	00	00	00	00	00	00	BS	30	20	150									
THOMPSON	860702	1400	T2	15.0	80	20	00	00	00	00	40	00	00	00	00	10	00	ES	150	20	100									
THOMPSON	860702	1440	T3	17.0	00	00	30	70	00	00	00	00	00	00	00	00	00	BS	80	10	125									
THOMPSON	860702	1520	T4	15.0	00	40	30	30	00	00	00	20	00	00	00	10	00	BS	30	23	125									
THOMPSON	860702	2005	T5	14.0	30	60	10	00	00	00	20	30	00	00	00	00	05	ES	30											
THOMPSON	860703	0730	T4	13.0	00	50	00	00	50	00	00	00	00	00	10	00	00	ES	100	15	75									90
THOMPSON	860703	0840	T5	13.0	40	30	30	00	00	00	20	20	00	00	00	10	00	ES	70	23	65									90
THOMPSON	860703	0900	T6	13.0	50	20	30	00	00	00	30	10	00	00	00	00	00	ES	300	25	165									96.4
THOMPSON	860703	1015	T6.5		00	00	70	30	00	00	00	00	00	00	00	40	20	BS		13	60									
THOMPSON	860703	1145	T7	14.0	10	00	30	60	00	00	10	00	00	00	00	10	30	ES	120	18	65									93.4
THOMPSON	860703	1215	T7.5	14.0	30	50	20	00	00	00	20	00	00	00	00	00	00	ES	120	30	280									94.5
THOMPSON	860703	1300	T8	14.0	20	00	00	80	00	00	10	00	00	00	00	00	30	ES		13	115									92.5
THOMPSON	860703	1330	T8	14.0	40	60	00	00	00	00	10	20	00	00	00	10	00	ES	140	30	275									94.2
THOMPSON	860704	1855	T5	13.0	20	70	10	00	00	00	10	50	00	00	00	00	02	ES	36											
THOMPSON	860708	1030	T5	13.0	00	99	00	00	01	00								ES	115											90
THOMPSON	860710	0920	T5	15.0	50	40	10	00	00	00	05	00	00	00	00	00	00	ES	32	20	21	3	16	32	27	16	24	28	15	
THOMPSON	860714	1245	T1	16.0	70	30	00	00	00	00	30	10	00	00	00	00	00	ES	180											102
THOMPSON	860714	1245	T1	16.0	00	00	50	50	00	00	00	00	00	00	00	00	00	BS	60	20	135									
THOMPSON	860714	1300	T2	16.0	60	40	00	00	00	00	30	10	00	00	00	10	00	ES	180	23	125									
THOMPSON	860714	2000	T4	13.0	00	40	30	30	00	00								ES	60	18	175									95
THOMPSON	860715	0730	T1															MT7	17.5											
THOMPSON	860715	0730	T2															MT8	17.5											
THOMPSON	860715	0830	T4															MT9	24.5											
THOMPSON	860715	0835	T4	14.0														BS	60											
THOMPSON	860715	0840	T3	15.0	00	00	40	60	00	00	00	00	00	00	00	00	00	BS	30	13	125									
THOMPSON	860715	0940	T5	15.0	70	30	00	00	00	00	40	20	00	00	00	00	00	ES		13	175									
THOMPSON	860715	1005	T6	14.0	60	40	00	00	00	00	30	20	00	00	00	00	00	ES	180	18	175									94.7
THOMPSON	860715	1050	T6.5	14.0	00	00	30	70	00	00	00	00	00	00	00	00	00	BS	40	18	120									
THOMPSON	860715	1415	T8	14.0	40	60	00	00	00	00	20	30	00	00	00	00	00	ES	240	20	175									92
THOMPSON	860715	1600	T9	14.0	30	30	30	10	00	00	20	20	00	00	00	00	00	ES	240	20	115									
THOMPSON	860716	0730	T5															MT8	22											

RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SUBSTRATE BO	CO	GR	SA	SI	HP	COVER BO	CO	GR	CB	LD	OV	IV	SM	SA	DEPTHS & VELOCITIES V1	D1	V2	D2	V3	D3	V4	D4	V5	D5	COND
THOMPSON	860716	0800	T7															MT8	19											
THOMPSON	860716	0830	T8															MT8	18.5											
THOMPSON	860716	0920	T5															MT8	2											
THOMPSON	860725	0930	T5	17.0	20	80	00	00	00	00	20	00	00	00	00	00	00	ES	20											145
THOMPSON	860728	1345	T1	17.0	00	20	50	30	00	00	00	10	00	00	00	00	00	BS	30	13	175									
THOMPSON	860728	1500	T2	17.0	20	60	10	10	00	00	10	20	00	00	00	00	00	BS	20	18	110									101
THOMPSON	860729	0730	T3	16.0	10	00	30	60	00	00	00	00	00	00	00	00	00	BS	30	18	125									
THOMPSON	860729	0830	T1	16.0	70	30	00	00	00	00	40	20	00	00	00	00	00	ES	100	25	250									102
THOMPSON	860729	0900	T2	16.0	50	30	10	10	00	00	30	00	00	00	00	30	00	ES	120	13	125									102
THOMPSON	860729	0945	T4	18.0	00	20	60	20	00	00	00	00	00	00	00	00	00	BS	20	30	200									
THOMPSON	860729	1020	T5	18.0	70	30	00	00	00	00	30	10	00	00	00	00	00	ES	180	10	100									120
THOMPSON	860729	1055	T5	18.0	70	30	00	00	00	00	30	10	00	00	00	00	00	BS	30	10	150									
THOMPSON	860729	1245	T6	17.0	70	30	00	00	00	00	40	00	00	00	00	00	00	ES	180	20	180									102
THOMPSON	860729	1405	T7.5	17.0	30	70	00	00	00	00	20	30	00	00	00	00	00	ES	60	13	225									104
THOMPSON	860729	1405	T7	17.0	05	00	00	95	00	00	00	00	00	00	00	00	10	BS	30	13	225									
THOMPSON	860729	1500	T8	17.0	40	60	00	00	00	00	20	20	00	00	00	00	00	ES	160	23	125									106
THOMPSON	860730	0805	T9	16.0	00	00	10	90	00	00	00	00	00	00	00	00	00	BS	20	15	125									
THOMPSON	860808	0950	T5	22.0	20	80	00	00	00	00	10	10	00	00	00	00	00	ES	36	0	26	0	18	0	23	0	21	0	24	
THOMPSON	860811	1300	T1	19.0	30	50	00	20	00	00	00	00	00	00	00	00	00	BS	30	15	100									
THOMPSON	860811	1400	T1		60	40	00	00	00	00	30	00	00	00	00	00	00	ES	30	20	225									
THOMPSON	860812	0800	T5	17.0	40	60	00	00	00	00	20	30	00	00	00	00	00	ES	150	13	100									
THOMPSON	860812	0800	T5	17.0	40	60	00	00	00	00	20	30	00	00	00	00	00	BS	20	13	100									
THOMPSON	860812	0945	T6		70	30	00	00	00	00	40	10	00	00	00	00	00	ES	140	10	175									
THOMPSON	860812	0945	T6.5															BS	30											
THOMPSON	860812	1300	T8		50	50	00	00	00	00	30	20	00	00	00	00	00	ES	120	23	175									
THOMPSON	860812	1430	T7		20	00	00	80	00	00	00	00	00	00	00	00	00	BS	30	10	100									
THOMPSON	860812	1530	T3	21.0	00	20	30	50	00	00	00	10	00	00	00	00	00	BS	30	20	100									
THOMPSON	860814	1000	T5	20.0	25	75	00	00	00	00	20	10	00	00	00	00	00	ES	125											
THOMPSON	860816	0940	T5	18.0	35	65	00	00	00	00	15	15	00	00	00	00	00	ES	100	2	27	2	21	5	15	2	12	4	18	
THOMPSON	860820	0945	T5	17.0														ES	20											
THOMPSON	860821	1010	T5	18.0	10	80	10	00	00	00	05	10	00	00	00	00	00	ES	70	6	38	10	39	27	27	36	21	32	24	109
THOMPSON	860825	1230	T1	19.0	00	50	30	20	00	00	00	00	00	00	00	00	00	BS	30	15	90									90.7
THOMPSON	860825	1300	T1		60	40	00	00	00	00	30	20	00	00	00	00	00	ES	60	28	200									
THOMPSON	860825	1400	T2	19.0	60	20	20	00	00	00	30	10	00	00	00	00	00	ES	80	15	75									91.3

RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SUBSTRATE BO	CO	GR	SA	SI	HP	COVER BO	CO	GR	CB	LD	OV	IV	SM	SA	DEPTHS & VELOCITIES V1	D1	V2	D2	V3	D3	V4	D4	V5	D5	COND
THOMPSON	860825	1430	T2	17.0	30	00	00	70	00	00	00	00	00	00	00	00	00	ES	30	13	100									
THOMPSON	860825	1500	T3	19.0	80	20	00	00	00	00	50	00	00	00	00	00	00	ES	100	20	250									85.7
THOMPSON	860826	0730	T3	17.0	10	00	20	70	00	00	00	00	00	00	00	00	00	BS	20	20	125									
THOMPSON	860826	0810	T4	17.0	60	40	00	00	00	00	30	20	00	00	00	00	00	ES	120	30	85									84.2
THOMPSON	860826	0910	T5	18.0	70	30	00	00	00	00	40	20	00	00	00	00	00	ES	90	13	75									94.1
THOMPSON	860826	0950	T6	19.0	70	10	00	20	00	00	40	00	00	00	00	00	00	ES	80	20	125									106
THOMPSON	860826	1210	T8	20.0	60	40	00	00	00	00	30	20	00	00	00	00	00	ES	60	40	100									
THOMPSON	860826	1310	T7	20.0	30	20	00	50	00	00	10	00	00	00	00	00	00	BS	20	15	100									93.6
THOMPSON	860826	1330	T7		40	20	20	20	00	00	20	10	00	00	00	00	00	ES	60	20	60									
THOMPSON	860827	1040	T5	21.0	00	80	10	00	10	00	00	80	20	00	00	00	00	ES												
THOMPSON	860829	1600	T5	20.0														ES	20											
THOMPSON	860906	0950	T5	16.0	20	80	00	00	00	00	05	30	00	00	00	00	00	ES	52.5	20	15	16	15	10	30	15	15	15	36	
THOMPSON	860909	1300	T1	17.0	00	20	70	10	00	00	00	00	00	00	00	00	00	BS	20	13	125									90
THOMPSON	860909	1330	T1	17.0	70	30	00	00	00	00	40	20	00	00	00	00	00	ES	60	18	200									90
THOMPSON	860909	1445	T3	17.0	00	00	20	80	00	00	00	00	00	00	00	00	00	ES	20	20	125									
THOMPSON	860910	1230	T6.5	16.0	00	20	40	40	00	00	00	10	00	00	00	00	00	ES	30	15	100									
THOMPSON	860910	1315	T6	16.0	70	30	00	00	00	00	40	10	00	00	00	00	00	ES	90	8	200									94.6
THOMPSON	860910	1415	T8	16.0	80	20	00	00	00	00	90	10	00	00	00	00	00	ES	40	25	110									93.8
THOMPSON	860912	0918	T5	15.0	20	80	00	00	00	00	05	30	00	00	00	00	00	ES	15											
THOMPSON	860914	1200	T5	15.0														ES												
THOMPSON	860917	1800	T5	15.0														ES	100											
THOMPSON	860922	1235	T1	15.0	60	20	20	00	00	00	30	10	00	00	00	00	00	ES	120	25	115									96.1
THOMPSON	860922	1320	T2	15.0	70	20	00	10	00	00	40	10	00	00	00	00	00	ES	200	18	65									92.5
THOMPSON	860922	1410	T1		05	00	85	10	00	00	00	00	00	00	00	00	00	BS	15	7.5	90									
THOMPSON	860922	1530	T4	15.0	80	10	00	10	00	00	50	10	00	00	00	00	00	ES	75	7.5	110									93.8
THOMPSON	860922	1630	T5	15.0	90	10	00	00	00	00	50	00	00	00	00	00	00	ES	80	7.5	100									103
THOMPSON	860923	0645	T6	15.0	80	15	00	05	00	00	50	00	00	00	00	00	00	ES	60	10	175									97.8
THOMPSON	860923	0730	T6.5	15.0	10	30	40	20	00	00	10	20	00	00	00	00	00	BS	30	13	115									
THOMPSON	860923	0815	T7	15.0	60	20	10	10	00	00	40	10	00	00	00	00	00	ES	60	15	115									95.7
THOMPSON	860923	1005	T7	15.0	10	20	20	50	00	00	10	10	00	00	00	00	00	BS	20	25	115									
THOMPSON	860923	1010	T3	12.0	05	05	00	90	00	00	00	00	00	00	00	00	00	BS	20	20	160									
THOMPSON	861001	1235	T5	14.0	20	80	00	00	00	00	05	25	00	00	00	00	00	ES	60	4	40	0	38	2	45	1	40	1	48	
THOMPSON	861006	1345	T1	14.0	70	20	10	00	00	00	50	10	00	00	00	00	00	ES	150	30	165									105
THOMPSON	861006	1445	T2	14.0	80	20	00	00	00	00	50	10	00	00	00	00	00	ES	70	13	85									103

RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SUBSTRATE BO	CO	GR	SA	SI	HP	COVER BO	CO	GR	CB	LD	OV	IV	SM	SA	DEPTHS & VELOCITIES V1	D1	V2	D2	V3	D3	V4	D4	V5	D5	COND
THOMPSON	861006	1600	T4	14.0														ES	100										107
THOMPSON	861007	0650	T3	11.0	10	00	20	70	00	00	00	00	00	00	00	00	00	BS	20	13	75									
THOMPSON	861007	0745	T5	13.0	70	30	00	00	00	00	40	20	00	00	00	00	00	ES	120	10	90									111
THOMPSON	861007	0815	T4	13.0	60	40	00	00	00	00	30	10	00	00	00	00	00	ES	300	7.5	90									102
THOMPSON	861007	1010	T6.5	13.0	05	05	20	70	00	00	00	00	00	00	00	00	00	BS	15	13	100									
THOMPSON	861007	1025	T6	14.0	70	30	00	00	00	00	40	10	00	00	00	00	00	ES	70	15	175									107
THOMPSON	861007	1220	T8	14.0	70	30	00	00	00	00	40	10	00	00	00	00	00	ES	200	20	175									109
THOMPSON	861007	1315	T7	14.0	50	20	10	20	00	00	30	10	00	00	00	00	00	ES	100	20	115									109
THOMPSON	861011	1000	T5															ES												
THOMPSON	861017	0845	T5	9.5	20	80	00	00	00	00	05	25	00	00	00	00	00	ES	86	2	33	1	42	0	39	2	48	0	39	
THOMPSON	861019	1245	T1	12.0	70	20	10	00	00	00	50	10	00	00	00	00	00	ES	150	30	125									113
THOMPSON	861019	1345	T2	11.0	80	20	00	00	00	00	50	10	00	00	00	00	00	ES	120	13	85									115
THOMPSON	861019	1435	T3	9.5	10	00	20	70	00	00	00	00	00	00	00	00	00	BS	30	13	125									
THOMPSON	861019	1500	T3	12.0	80	20	00	00	00	00	50	10	00	00	00	00	00	ES	60	20	175									
THOMPSON	861019	1530	T5	17.0	70	30	00	00	00	00	40	20	00	00	00	00	00	ES	140	10	100									111
THOMPSON	861020	0730	T4	11.0	60	40	00	00	00	00	30	10	00	00	00	00	00	ES	40	10	65									98.4
THOMPSON	861020	0835	T6.5	12.0	05	05	20	70	00	00	00	00	00	00	00	00	00	BS	30	10	100									
THOMPSON	861020	0910	T7	12.0	70	30	00	00	00	00	40	10	00	00	00	00	00	ES	60	15	90									102
THOMPSON	861020	1025	T8	12.0	70	30	00	00	00	00	40	10	00	00	00	00	00	ES	140	20	175									102
THOMPSON	861021	1005	T5	9.0	25	70	00	00	05	00	10	20	00	00	00	00	00	ES	60											
THOMPSON	861029	1235	T5	8.0														ES	60											
THOMPSON	861105	1415	T1	9.5	30	20	20	30	00	00	10	10	00	00	00	00	00	BS	20	15	75									
THOMPSON	861105	1415	T1	9.5	70	20	10	00	00	00	40	20	00	00	00	00	00	ES	200	15	75									119
THOMPSON	861105	1500	T2.5	9.5	60	40	00	00	00	00	30	20	00	00	00	00	00	ES	50	18	60									111
THOMPSON	861105	1530	T2	9.5														ES	55											
THOMPSON	861105	1600	T3	6.5														BS	35											
THOMPSON	861106	0820	T4	9.0														ES	100											111
THOMPSON	861106	1415	T4															MT11	3											
THOMPSON	861106	1510	T5															MT12	4.5											
THOMPSON	861117	1530	T1	5.5	50	30	20	00	00	00	30	20	00	00	00	00	00	ES	120	13	75									135
THOMPSON	861118	0815	T3															BS												
THOMPSON	861118	0840	T4	5.0	80	20	00	00	00	00	50	10	00	00	00	00	00	ES	180	6.5	45									129
THOMPSON	861118	1315	T5	5.0	80	20	00	00	00	00	50	10	00	00	00	00	00	ES	80	6.5	35									134
THOMPSON	861118	1500	T6.5	5.5	20	50	30	00	00	00	10	30	00	00	00	00	00	BS	15	10	85									
THOMPSON	861118	1515	T6	5.5	80	20	00	00	00	00	40	10	00	00	00	00	00	ES	160	13	115									136

RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SUBSTRATE BO	CO	GR	SA	SI	HP	COVER BO	CO	GR	CB	LD	OV	IV	SM	SA	DEPTHS & VELOCITIES V1	D1	V2	D2	V3	D3	V4	D4	V5	D5	COND
THOMPSON	861119	0810	T7		60	30	00	10	00	00	30	20	00	00	00	00	00	ES	120	7.5	85									129
THOMPSON	861119	1100	T2	5.0	50	30	00	20	00	00	30	20	00	00	00	00	00	ES	70	10	55									135
THOMPSON	861119	1145	T1															BS												
THOMPSON	870112	1410	T1	4.0	30	30	20	20	00	00	20	20	00	00	00	00	00	ES	240	20	200									150
THOMPSON	870112	1540	T2	4.0	60	40	00	00	00	00	30	20	00	00	00	00	00	ES	120	15	100									153
THOMPSON	870113	0950	T4	2.0	60	30	00	10	00	00	40	20	00	00	00	00	00	ES	240	0	100									301
THOMPSON	870113	1300	T5	2.5	30	40	10	00	00	20	20	20	00	00	00	00	00	ES	140	0	150									202
THOMPSON	870113	1440	T6	3.5	70	30	00	00	00	00	40	20	00	00	00	00	10	ES	160	20	110									130
THOMPSON	870113	1550	T7	3.5	50	30	10	10	00	00	30	20	00	00	00	00	00	ES	140	10	100									138
THOMPSON	870217	1000	T1	3.0	40	40	00	20	00	00	20	20	00	00	00	00	05	ES	140	28	80	7	60	3	100	2	70	3	100	148
THOMPSON	870217	1150	T2	3.0	50	40	00	10	00	00	30	20	00	00	00	00	00	ES	75	5	70	2	70	1	80	1	100	.4	100	151
THOMPSON	870217	1420	T3	4.0	40	30	15	05	00	00	30	10	00	00	00	00	00	ES	40	2	40	25	60	15	40	26	54	15	36	232
THOMPSON	870218	0910	T5	2.0	60	40	00	00	00	00	40	20	00	00	00	00	00	ES	60	0	50	1	50	3	86	4	62	4	40	154
THOMPSON	870218	1100	T6	2.5	70	30	00	00	00	00	40	18	00	00	00	00	02	ES	60	2	80	6	60	8	50	11	90	28	98	150
THOMPSON	870317	1430	T1	5.0	40	40	20	00	00	00	20	20	00	00	00	00	00	ES	140	2	14	3	26	1	20	2	20	1	20	163
THOMPSON	870317	1530	T2	5.0	60	40	00	00	00	00	30	20	00	00	00	00	00	ES	135											164
THOMPSON	870318	0915	T4	5.0	60	30	10	00	00	00	30	10	00	00	00	00	00	ES	190	1	30	1	16	0	22	0	22	0	20	155
THOMPSON	870318	1040	T5	5.0	60	40	00	00	00	00	30	20	00	00	00	00	00	ES	90	4	48	5	42	2	44	5	48	3	50	163
THOMPSON	870318	1235	T6	5.0	60	40	00	00	00	00	30	20	00	00	00	00	05	ES	120	12	38	8	21	20	48	13	32	8	60	161
THOMPSON	870413	1500	T1	6.5	60	40	00	00	00	00	40	20	00	00	00	00	00	ES	120	10	44	40	38	2	22	5	24	4	50	185
THOMPSON	870413	1605	T2	6.5	80	20	00	00	00	00	40	10	00	00	00	00	00	ES	180	3	50	7	50	5	70	1	40	6	28	186
THOMPSON	870413	1715	T3	8.5	10	20	30	50	00	00	05	10	00	00	00	00	00	BS	20											187
THOMPSON	870414	0750	T4	6.5	50	30	20	00	00	00	30	20	00	00	00	00	00	ES	130	18	32	17	30	26	48	1	48	20	58	157
THOMPSON	870414	1100	T5	6.5	70	30	00	00	00	00	40	10	00	00	00	00	00	ES	140	2	24	3	60	1	30	4	50	7	20	159
THOMPSON	870414	1310	T6	8.0	70	30	00	00	00	00	40	10	00	00	00	00	00	ES	120	1	22	3	50	2	52	2	32	1	30	123
THOMPSON	870513	1400	T1	11.0	60	40	00	00	00	00	30	20	00	00	00	00	00	ES	100	13	34	10	66	0	76	19	68	4	44	80
THOMPSON	870513	1515	T1	11.0	00	10	90	00	00	00	00	00	00	00	00	00	00	BS	30											80
THOMPSON	870514	0955	T3	13.0	00	00	70	30	00	00	00	00	00	00	00	00	00	BS	30											
THOMPSON	870514	1020	T4	10.0	00	00	40	60	00	00	00	00	00	00	00	00	40	BS	20	2	70	4	62	1	72	2	44	8	48	
THOMPSON	870514	1230	T6.5	11.5	00	00	40	60	00	00	00	00	00	00	00	00	20	BS	30	15	72	16	76	23	80	14	86	10	92	
THOMPSON	870514	1400	T7	11.5	10	00	00	90	00	00	00	00	00	00	00	00	30	BS	30	14	68	19	78	4	82	4	80	2	90	

Table 2. Fish catch data using electrofishing, beach seining, pole seining and minnow trapping at sample stations on the Thompson River system during 1986. Data include date, Pacific Standard Time, station number, water temperature (°C). Population estimates for chinook (CH) coho (CO) Rainbow trout (RBT) are the result of multiple pass Zippin population estimate calculations. Total site catch for chinook (CH), coho (CO), rainbow trout (RBT), mountain whitefish (MWF), Dolly Varden char (DV), lamprey (LMP), cyprinids - other than suckers (CYP), suckers (SU), all other species (OTH), is the total catch of 3 passes at the site from electrofishing, beach seining and pole seining and the total of all traps when minnow trapping. The population densities per square meter for chinook (CH), coho (CO), rainbow trout (RBT) are from the Zippin population estimates divided by the sample area. Zippin population estimates have 95% confidence intervals. Minimum population estimates do not have confidence intervals.

RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SM	POP'N EST CH	POP'N EST CO	POP'N EST RBT	TOTAL SITE CATCH CH	TOTAL SITE CATCH CO	TOTAL SITE CATCH RBT	TOTAL SITE CATCH MWF	TOTAL SITE CATCH DV	TOTAL SITE CATCH LMP	TOTAL SITE CATCH CYP	TOTAL SITE CATCH SU	TOTAL SITE CATCH OTH	POPULATION DENSITIES (± 95% CL) CH	CO	RBT
THOMPSON	860117	1000	T3		MT7						1							.18		.38
THOMPSON	860117	1000	T3		ES				8		17									
THOMPSON	860117	1300	T1	5.5	ES											1				.04
THOMPSON	860118	1115	T1	2.0	MT10				1						2			.04		.15
THOMPSON	860324	1030	T8	4.0	ES				4		2					1		.60	.03	.01
THOMPSON	860324	1215	T6	6.0	ES	18	4.3		18	1	4	9						.02		2.5±.36
THOMPSON	860324	1415	T1	3.5	ES				2		1				1	22		.35±.003		
THOMPSON	860325	0855	T3	4.0	ES	14	98		14		86	6						.03		.46±.06
THOMPSON	860325	0855	T3	4.0	BS				1									1.6±.06		9.1
THOMPSON	860325	1100	T5	3.5	ES	31	9.2		31		9						1	.02		1.2±.12
THOMPSON	860326	1025	T1	4.0	ES				2		1					2		.73±3.3		
THOMPSON	860326	1130	T7	5.0	ES	29	49		10		47						2	.02		
THOMPSON	860407	1245	T1	5.0	ES				1						2	65	7	.27	.02	1.9±.08
THOMPSON	860407	1515	T3	10.0	ES		84		12	1	82					3	1	.08		.21±.05
THOMPSON	860408	0915	T4	7.0	ES		7.4		3		7							.24±.05		.20±.01
THOMPSON	860408	1020	T5	8.0	ES	15	12		14		12						2	.22±.12		.36±.10
THOMPSON	860408	1140	T7	8.5	ES	8.1	13		7		12							.34±.10	.02	.77±.12
THOMPSON	860415	1215	T3	5.5	ES	20	46		18	1	42				6	4	12	.007		.007
THOMPSON	860421	1630	T1	5.0	BS				1								9	.007		.007
THOMPSON	860421	1630	T1	5.0	ES				1		1						13	.02	.04	.02
THOMPSON	860422		T3	5.0	BS				1	2	1					2	2	.02		.03
THOMPSON	860422	1000	T5	5.0	ES	130			99		5						2	.65±.17		
THOMPSON	860422	1000	T5	5.0	BS				1									.01		.10
THOMPSON	860422	1100	T4	5.0	ES	88			75		9	1						.95±.18		
THOMPSON	860422	1100	T4	5.0	BS											1	3	.53±.72		.02
THOMPSON	860422	1245	T6	5.0	ES	126	3.8		54		3	1						4.3±48.3		.10
THOMPSON	860422	1345	T7	5.0	ES	54			47		12	1					134	.01±.01	.02±.02	.01
THOMPSON	860507	1430	T1	6.0	BS	1.2	2.4		1	2	1					2				.91±.17
THOMPSON	860508	0745	T3	8.5	BS											16	2	1.2±.44		.01
THOMPSON	860514	1345	T5	10.0	ES	61		46	47		41						3	.08		.01
THOMPSON	860520	1145	T1	10.0	ES				15		1						4	.03		
THOMPSON	860520	1230	T1	10.0	ES				5		1						8			

RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SM	POP'N EST CH	POP'N EST CO	POP'N EST RBT	TOTAL SITE CATCH CH	TOTAL SITE CATCH CO	TOTAL SITE CATCH RBT	TOTAL SITE CATCH MWF	TOTAL SITE CATCH DV	TOTAL SITE CATCH LMP	TOTAL SITE CATCH CYP	TOTAL SITE CATCH SU	TOTAL SITE CATCH OTH	POPULATION CH	DENSITIES (± 95% CL) CO	DENSITIES (± 95% CL) RBT
THOMPSON	860520	1305	T2	10.0	ES	14			9							2	3	.14±.22		
THOMPSON	860520	1415	T4	10.0	ES	23	6	8.1	9	4	8				1		1	.23±.92	.06±.12	.08±.01
THOMPSON	860520	1450	T5		ES				1		1				1	1		.01		.01
THOMPSON	860521	0710	T5	9.5	ES	161		29	133		25				63	2		3.4±.55		.61±.20
THOMPSON	860521	0845	T7	8.5	ES	34		21	18	1	16				1			.21±.35	.01	.13±.09
THOMPSON	860521	1000	T8	9.0	ES				2		2				1			.02		.02
THOMPSON	860528	1345	T5	12.0	ES	261		18	21	1	12				37	6		7.7±1.1		.53±.59
THOMPSON	860603	1030	T5	11.0	PS	14			14						65			.56		
THOMPSON	860603	1415	T1	10.0	ES				5		1							.25		.05
THOMPSON	860603	1415	T1	10.0	PS				19								1	.95		
THOMPSON	860603	1540	T4		PS	12		3.8	10		3							.59±.30		.19±.26
THOMPSON	860603	1540	T4		PS				17		1				2			1.7		.10
THOMPSON	860603	1540	T4		PS				1		1							.10		.10
THOMPSON	860604	0800	T4	11.0	PS	7.7			6			1				2		.77±.73		
THOMPSON	860604	0910	T5	11.0	PS	93			69	4	2	2			331	10		3.1±1.2	.13	.07
THOMPSON	860604	1345	T8	11.0	BS	24			14							1	6	2.4±3.3		
THOMPSON	860605	0905	T5		PS	20			11		1	2			32		1	.65±1.1		.03
THOMPSON	860608	1355	T5	12.0	PS	67			26		2				24	2	10	2.6±6.0		.08
THOMPSON	860610	2025	T5	12.0	PS	8.3			8	1	1				3		1	.29±.05	.03	.03
THOMPSON	860611	1000	T5	10.0	PS	33			33		1				17			3.4±.14		.10
THOMPSON	860613	0905	T5	14.0	PS				2						2			.07		
THOMPSON	860616	1515	T1	13.0	BS			8.1	40		8	1					2	1.3		.27±.02
THOMPSON	860617	0830	T7	12.0	ES				11		6					10	1	.05		.03
THOMPSON	860617	0945	T8	11.0	ES															
THOMPSON	860617	1100	T6	11.0	ES			6			4									.02
THOMPSON	860617	1135	T6	11.0	ES	6.1			6		2							.15±.03		.05
THOMPSON	860617	1320	T4		BS	15			15	10		2				3		.50±.01	.33	
THOMPSON	860619	2020	T5	12.0	PS	25			21						2			.74±.29		
THOMPSON	860621	2005	T5	12.0	PS	27			21		1						2	.79±.40		.03
THOMPSON	860624		T5	12.0	ES						1				10	1	5			.02
THOMPSON	860624		T5	12.0	PS				1									.05		
THOMPSON	860625		T5	13.0	ES										16		2			
THOMPSON	860702	1300	T1	15.0	BS	33			32		1				1		1	1.1±.08	.03	

RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SM	POP'N EST CH	POP'N EST CO	POP'N EST RBT	TOTAL SITE CATCH CH	TOTAL SITE CATCH CO	TOTAL SITE CATCH RBT	TOTAL SITE CATCH MWF	TOTAL SITE CATCH DV	TOTAL SITE CATCH LMP	TOTAL SITE CATCH CYP	TOTAL SITE CATCH SU	TOTAL SITE CATCH OTH	POPULATION DENSITIES (± 95% CL) CH	CO	RBT
THOMPSON	860702	1400	T2	15.0	ES						2				1		5			.01
THOMPSON	860702	1440	T3	17.0	BS				12	1	1							.15	.01	.01
THOMPSON	860702	1520	T4	15.0	BS										23		2			
THOMPSON	860702	2005	T5	14.0	ES				1			1						.01		.04
THOMPSON	860703	0730	T4	13.0	ES				1		3				2	1	1	.01		.07±.27
THOMPSON	860703	0840	T5	13.0	ES	7.3		22	4	3	9							.02±.07	.01	
THOMPSON	860703	0900	T6	13.0	ES										1			.02	.02	.01
THOMPSON	860703	1015	T6.5		BS				2	2	1								.01	.03±.04
THOMPSON	860703	1145	T7	14.0	ES			3.8		1	3	1						.01	.04	.08
THOMPSON	860703	1215	T7.5	14.0	ES															.03
THOMPSON	860703	1300	T8	14.0	ES				1	6	11				39					
THOMPSON	860703	1330	T8	14.0	ES						1				19					
THOMPSON	860704	1855	T5	13.0	ES										2	87	1	3	.52±.07	
THOMPSON	860708	1030	T5	15.0	ES	17			16							3				.17
THOMPSON	860710	0920	T5	15.0	ES														.10	.01
THOMPSON	860714	1245	T1	16.0	ES				6		1	4								
THOMPSON	860714	1245	T1	16.0	BS						1					2		1	1.4±2.6	
THOMPSON	860714	1300	T2	16.0	ES				33									3		
THOMPSON	860714	2000	T4	13.0	ES	81												2		
THOMPSON	860715	0730	T1		MT7						1									
THOMPSON	860715	0730	T2		MT8												1		.03	
THOMPSON	860715	0830	T4		MT9				2							2			.42±.44	.03
THOMPSON	860715	0835	T4	14.0	BS															.25±1.57
THOMPSON	860715	0840	T3	15.0	BS	13		7.5	9	1	3								.72±5.5	.05±.01
THOMPSON	860715	0940	T5	15.0	ES											2			.05	
THOMPSON	860715	1005	T6	14.0	ES		130	9.6	9	22	9								.08±.02	
THOMPSON	860715	1050	T6.5	14.0	BS		3.1		4	3			3				1		.10	.03
THOMPSON	860715	1415	T8	14.0	ES				1		6	1	1						.004	
THOMPSON	860715	1600	T9	14.0	ES				1		1	1							.004	.004
THOMPSON	860716	0730	T5		MT8				3	1										
THOMPSON	860716	0800	T7		MT8												1			
THOMPSON	860716	0830	T8		MT8						1									
THOMPSON	860716	0920	T5		MT8												2			
THOMPSON	860725	0930	T5	17.0	ES											35	1			

RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SM	POP'N EST CH	POP'N EST CO	POP'N EST RBT	TOTAL SITE CATCH CH	TOTAL SITE CATCH CO	TOTAL SITE CATCH RBT	TOTAL SITE CATCH MWF	TOTAL SITE CATCH DV	TOTAL SITE CATCH LMP	TOTAL SITE CATCH CYP	TOTAL SITE CATCH SU	TOTAL SITE CATCH OTH	POPULATION CH	DENSITIES (± 95% CL) CO	DENSITIES (± 95% CL) RBT
THOMPSON	860728	1345	T1	17.0	BS	16			14		3	4						.54±.21		.10
THOMPSON	860728	1500	T2.5	17.0	BS	80			79			10						4.0±.08		
THOMPSON	860729	0730	T3	16.0	BS	90	7.3		51	4	3	2					2	3.0±2.4	.24±.75	.10
THOMPSON	860729	0830	T1	16.0	ES										5	1	1			
THOMPSON	860729	0900	T2	16.0	ES						2						1			.02
THOMPSON	860729	0945	T4	18.0	BS				1									.05		
THOMPSON	860729	1020	T5	18.0	ES	6.1	3.8		6	3	1	2						.03±.01	.02±.03	.01
THOMPSON	860729	1055	T5	18.0	BS	22			22	2							2	.74±.04	.07	
THOMPSON	860729	1245	T6	17.0	ES	25	29	19	23	16	8				10		1	.14±.03	.16±.24	.10±.37
THOMPSON	860729	1405	T7.5	17.0	ES			2.2		1	2			1	1			.02	.02	.04±.03
THOMPSON	860729	1405	T7	17.0	BS				5		2							.17		.07
THOMPSON	860729	1500	T8	17.0	ES	7.1		5	7	1	5				8	8	2	.04±.01	.01	.03±.01
THOMPSON	860730	0805	T9	16.0	BS				2		1	1					4	.10		.05
THOMPSON	860808	0950	T5	22.0	ES										2		1			
THOMPSON	860811	1300	T1	19.0	BS			9.6	10	1	9	1						.33	.03	.32±.08
THOMPSON	860811	1400	T1		ES				0	1	1			1		1			.03	.03
THOMPSON	860812	0800	T5	17.0	ES	8.4			5							2		.06±.13		
THOMPSON	860812	0800	T5	17.0	BS				4									.20		
THOMPSON	860812	0945	T6		ES						1									.01
THOMPSON	860812	0945	T6.5		BS				4		2	1						.13		.07
THOMPSON	860812	1300	T8		ES			7.4	1	6	7				15		3	.01	.05	.06±.01
THOMPSON	860812	1430	T7		BS						1									.03
THOMPSON	860812	1530	T3	21.0	BS	53		6.6	53	17	6	2						1.8±.03	.57	.22±.09
THOMPSON	860814	1000	T5	20.0	ES										1	4	1			
THOMPSON	860816	0940	T5	18.0	ES											1	1			
THOMPSON	860820	0945	T5	17.0	ES				2						1			.10		
THOMPSON	860821	1010	T5	18.0	ES				3		1				5			.04		.01
THOMPSON	860825	1230	T1	19.0	BS				3			1					1	.10		
THOMPSON	860825	1300	T1		ES				2		1			1	6		2	.03		.02
THOMPSON	860825	1400	T2	19.0	ES				1					1			2	.01		
THOMPSON	860825	1430	T2	17.0	ES															
THOMPSON	860825	1500	T3	19.0	ES						1			1	1	1	1			.01
THOMPSON	860826	0730	T3	17.0	BS	31			30		1							1.5±.11		.05
THOMPSON	860826	0810	T4	17.0	ES	46		4.4	30		4				6	3	4	.38±.27		.04±.02

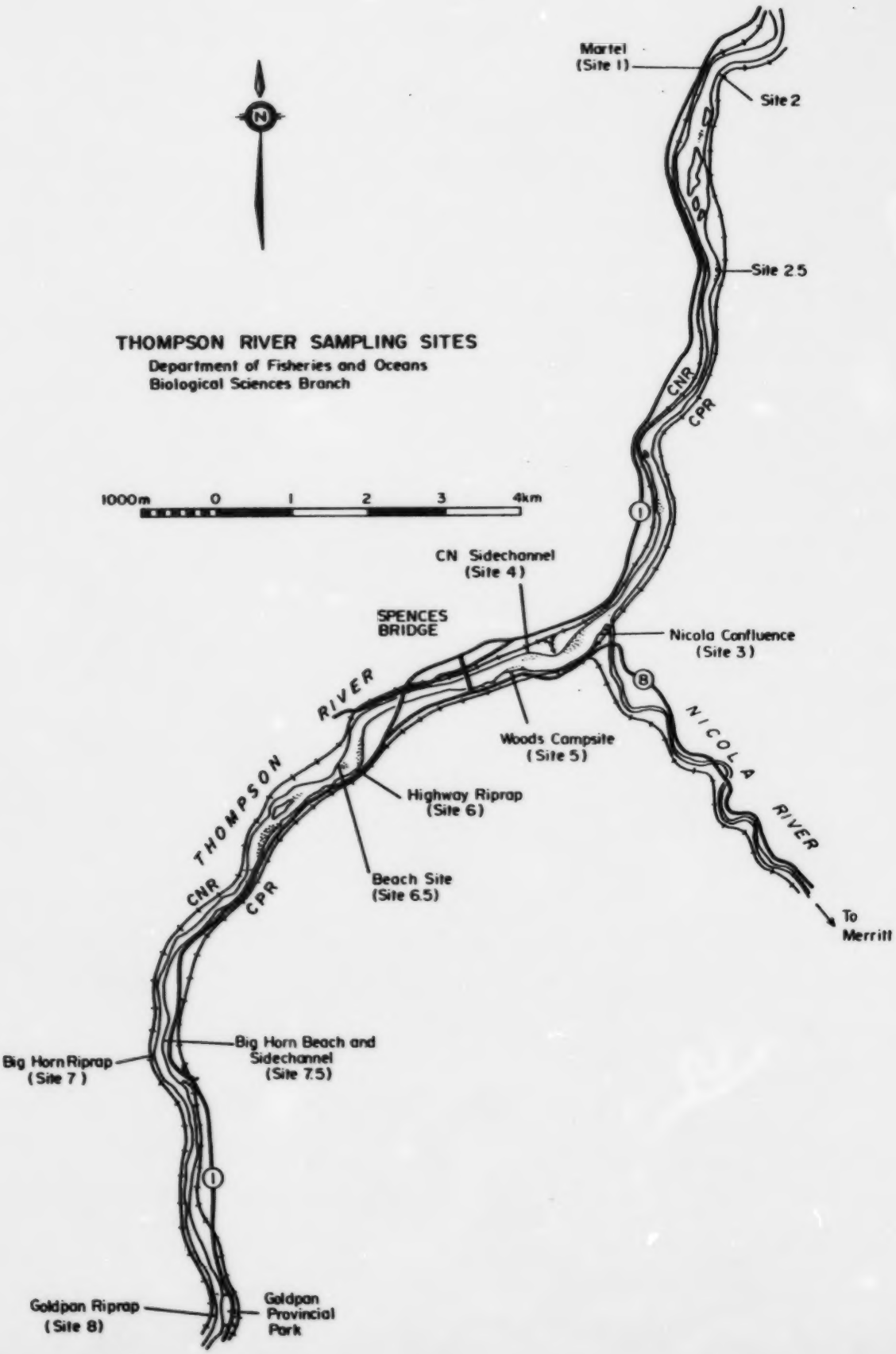
RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SM	POP'N EST CH	CO	RBT	TOTAL SITE CATCH CH	CO	RBT	MWF	DV	LMP	CYP	SU	OTH	POPULATION CH	DENSITIES (± 95% CL) CO	RBT
THOMPSON	860826	0910	T5	18.0	ES	42			35					2	1	5	11	.47±.15		
THOMPSON	860826	0950	T6	19.0	ES	312		23	36	1	9				3	8	4	3.9±36.7	.01	.29±1.15
THOMPSON	860826	1210	T8	20.0	ES				7		4			1	17		9	.12		.07
THOMPSON	860826	1310	T7	20.0	BS															
THOMPSON	860826	1330	T7		ES			4	2		4				1	1	1	.03		.07±.01
THOMPSON	860827	1040	T5	21.0	ES										2					
THOMPSON	860829	1600	T5	20.0	ES				1						2			.05		
THOMPSON	860906	0950	T5	16.0	ES				1					1	1		1	.02		
THOMPSON	860909	1300	T1	17.0	BS															
THOMPSON	860909	1330	T1	17.0	ES				1						5	1	2	.02		
THOMPSON	860909	1445	T3	17.0	ES				84									4.2		
THOMPSON	860910	1230	T6.5	16.0	ES	7.7			6		6							.26±.24		.20
THOMPSON	860910	1315	T6	16.0	ES	6			4	2	2							.07±.13	.02	.02
THOMPSON	860910	1415	T8	16.0	ES			5.9	4	1	5							.10	.03	.15±.12
THOMPSON	860912	0918	T5	15.0	ES				2					1	3		2	.13		
THOMPSON	860914	1200	T5	15.0	ES															
THOMPSON	860917	1800	T5	15.0	ES									2	2		3			
THOMPSON	860922	1235	T1	15.0	ES	7.4			7		7				5		12	.06±.02		.06
THOMPSON	860922	1320	T2	15.0	ES	4			4		2						5	.02±.01		.01
THOMPSON	860922	1410	T1		BS			3.8	20		3						1	1.3		.26±.35
THOMPSON	860922	1530	T4	15.0	ES	44		16	41		16			1	5	1	4	.59±.08		.22±.02
THOMPSON	860922	1630	T5	15.0	ES	11			9		1			2	5	2	11	.14±.11		.01
THOMPSON	860923	0645	T6	15.0	ES				3		5				2	1	13	.05		.08
THOMPSON	860923	0730	T6.5	15.0	BS	118		5.9	118		5	2				1		3.9±.01		.20±.14
THOMPSON	860923	0815	T7	15.0	ES			124	16		21			3	1	1	2	.27		2.1±16.2
THOMPSON	860923	1005	T7	15.0	BS				3									.15		
THOMPSON	860923	1010	T3	12.0	BS	11			11									.55±.01		
THOMPSON	861001	1235	T5	14.0	ES				1						2		3	.02		
THOMPSON	861006	1345	T1	14.0	ES	15		6.1	7		6	1			2	1	3	.10±.32		.04±.01
THOMPSON	861006	1445	T2	14.0	ES			3.1	1		3					1	3	.01		.04±.01
THOMPSON	861006	1600	T4	14.0	ES				68		6							.68		.06
THOMPSON	861007	0650	T3	11.0	BS				1									.05		
THOMPSON	861007	0745	T5	13.0	ES				7		1					10	7	.06		.01
THOMPSON	861007	0815	T4	13.0	ES	105		15	97		14							.35±.03		.05±.01

RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SM	POP'N EST CH	POP'N EST CO	POP'N EST RBT	TOTAL SITE CATCH CH	TOTAL SITE CATCH CO	TOTAL SITE CATCH RBT	TOTAL SITE CATCH MWF	TOTAL SITE CATCH DV	TOTAL SITE CATCH LMP	TOTAL SITE CATCH CYP	TOTAL SITE CATCH SU	TOTAL SITE CATCH OTH	POPULATION DENSITIES (± 95% CL) CH	POPULATION DENSITIES (± 95% CL) CO	POPULATION DENSITIES (± 95% CL) RBT
THOMPSON	861007	1010	T6.5	13.0	BS				1									.07		
THOMPSON	861007	1025	T6	14.0	ES				1		2					1		.01		.03
THOMPSON	861007	1220	T8	14.0	ES				5		3			6				.03		.02
THOMPSON	861007	1315	T7	14.0	ES	21			19		4			2	2	1	2	.21±.05		.04
THOMPSON	861011	1000	T5		ES										1					
THOMPSON	861017	0845	T5	9.5	ES				3								2	.03		
THOMPSON	861019	1245	T1	12.0	ES				12		6				3		1	.08		.04
THOMPSON	861019	1345	T2	11.0	ES				1								1	.01		
THOMPSON	861019	1435	T3	9.5	BS			3.1			3									.10±.02
THOMPSON	861019	1500	T3	12.0	ES						1									.02
THOMPSON	861019	1530	T5	17.0	ES	31			25		1					1	3	.22±.09		.01
THOMPSON	861020	0730	T4	11.0	ES	53		3.8	48		3				9	2	2	1.3±.21		.10±.13
THOMPSON	861020	0835	T6.5	12.0	BS	57			50							1	2	1.9±.35		
THOMPSON	861020	0910	T7	12.0	ES	77		23	52		21						1	1.3±.70		.39±.09
THOMPSON	861020	1025	T8	12.0	ES	7		14	7		9							.05±.002		.10±.16
THOMPSON	861021	1005	T5	9.0	ES									1			1			
THOMPSON	861029	1235	T5	8.0	ES									1			1			
THOMPSON	861105	1415	T1	9.5	BS				1									.05		
THOMPSON	861105	1415	T1	9.5	ES				1		1							.01		.01
THOMPSON	861105	1500	T2.5	9.5	ES	17			14		3							.34		.06
THOMPSON	861105	1530	T2	9.5	ES				8		4				1			.15		.07
THOMPSON	861105	1600	T3	6.5	BS				1									.03		
THOMPSON	861106	0820	T4	9.0	ES	200		26	190		23							2.0±.10		.26±.08
THOMPSON	861106	1415	T4		MT12				8		3									
THOMPSON	861106	1510	T5		MT11				15		4									
THOMPSON	861117	1530	T1	5.5	ES	32			27		1							.26±.08		.01
THOMPSON	861118	0815	T3		BS															
THOMPSON	861118	0840	T4	5.0	ES	284		142	206		24				6	1	2	1.6±.34		.79±5.8
THOMPSON	861118	1315	T5	5.0	ES	67			50								1	.83±.33		
THOMPSON	861118	1500	T6.5	5.5	BS	4			4									.27±.04		
THOMPSON	861118	1515	T6	5.5	ES			18	34		16				2			.21		.11±.04
THOMPSON	861119	0810	T7		ES	52		27	42		24							.43±.13		.22±.06
THOMPSON	861119	1100	T2	5.0	ES	4.4		7.4	4		7			3				.06±.03		.11±.03
THOMPSON	861119	1145	T1		BS															

RIVER SYSTEM	DATE YRMODA	TIME PST	STA NO	TEMP	SM	POP'N EST CH	POP'N EST CO	POP'N EST RBT	TOTAL SITE CATCH CH	TOTAL SITE CATCH CO	TOTAL SITE CATCH RBT	TOTAL SITE CATCH MWF	TOTAL SITE CATCH DV	TOTAL SITE CATCH LMP	TOTAL SITE CATCH CYP	TOTAL SITE CATCH SU	TOTAL SITE CATCH OTH	POPULATION CH	DENSITIES (± 95% CL) CO	RBT
THOMPSON	870112	1410	T1	4.0	ES	29		2	26	1	2						2	.12±.03		.01±.01
THOMPSON	870112	1540	T2	4.0	ES	12		12	10		9							.09±.05		.10±.07
THOMPSON	870113	0950	T4	2.0	ES	130	23	27	99	12	13			1		4	5	.54±.14	.10±.19	.11±.24
THOMPSON	870113	1300	T5	2.5	ES	67	3		34	3	3			6	3	1	5	.45±.49	.02±.01	.02
THOMPSON	870113	1440	T6	3.5	ES				53	16	6							.33	.10	.04
THOMPSON	870113	1550	T7	3.5	ES	31		10	17	3	8			2				.78±1.21		.24±.16
THOMPSON	870217	1000	T1	3.0	ES	31			19		5			2				.22±.25		.06±.14
THOMPSON	870217	1150	T2	3.0	ES			8	9		6							.12		.10±.10
THOMPSON	870217	1420	T3	4.0	ES			46	48		24				4	1		1.2		1.1±1.6
THOMPSON	870218	0910	T5	2.0	ES	42			36						1	2		.70±.18		
THOMPSON	870218	1100	T6	2.5	ES	136			69	1					1	2		2.26±2.01	.02	.68±3.50
THOMPSON	870317	1430	T1	5.0	ES				6		3						2	.04		.02
THOMPSON	870317	1530	T2	5.0	ES				5		4							.04		.03
THOMPSON	870318	0915	T4	5.0	ES	94		7	83		6	7						.04±.15		.07±.03
THOMPSON	870318	1040	T5	5.0	ES	61			39		6					1		.67±.47		.07
THOMPSON	870318	1235	T6	5.0	ES	167			91	1						1		1.39±.94	.01	
THOMPSON	870413	1500	T1	6.5	ES				24	4	5							.20	.03	.04
THOMPSON	870413	1605	T2	6.5	ES	8			8		4	1					1	.05±.01		.02
THOMPSON	870413	1715	T3	8.5	BS				4		1							.20		.01
THOMPSON	870414	0750	T4	6.5	ES	115			86		6				15	3		.88±.26		.05
THOMPSON	870414	1100	T5	6.5	ES	76			58		2							.54±.19		.01
THOMPSON	870414	1310	T6	8.0	ES				37		1				2			.31		.01
THOMPSON	870513	1400	T1	11.0	ES			8	2		8	1						.02		.08±.01
THOMPSON	870513	1515	T1	11.0	BS	137			137		7	14						4.57±.004		.07
THOMPSON	870514	0955	T3	13.0	BS				1									.03		
THOMPSON	870514	1020	T4	10.0	BS	103	4		72	4	1							5.14±2.10	.22±.10	.05
THOMPSON	870514	1230	T6.5	11.5	BS	54			54		1							1.8±.004		.03
THOMPSON	870514	1400	T7	11.5	BS	84	15		67	15								2.81±.76	.51±.04	

Table 3. D90 substrate measurements at Thompson River sample sites in centimetres.

		High water	Low water
Site 1	Riprap	57	84
	Beach	8	48
Site 2		50	58
Site 3	Cobble area	9	35
Site 4		35	37
Site 5		23	31
Site 6		64	78
Site 6.5		14	14


Martel
(Site 1)
Site 2
Site 2.5
THOMPSON RIVER SAMPLING SITES
Department of Fisheries and Oceans
Biological Sciences Branch
CNR
CPR
1000m 0 1 2 3 4km
1
CN Sidechannel
(Site 4)
SPENCES
BRIDGE
Nicola Confluence
(Site 3)
8
RIVER
NICOLA
RIVER
Woods Campsite
(Site 5)
THOMPSON
Highway Riprap
(Site 6)
Beach Site
(Site 6.5)
CNR
CPR
To
Merritt
Big Horn Beach and
Sidechannel
(Site 7.5)
Big Horn Riprap
(Site 7)
1
Goldpan Riprap
(Site 8)
Goldpan
Provincial
Park